

## REMARKS

Claims 13, 23 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The Examiner states that the specification fails to describe the variable  $x$  in  $Mn_xO_2$ . The variable  $x$  is the number of atoms of manganese in the compound, and one skilled in the art would understand this. Because of the bonding of manganese and oxygen together, one skilled in the art would know what numbers the variable  $x$  can be. For example,  $x$  can be 1 to form  $MnO_2$ . The specification is enabling.

Claims 13, 23, 26, 32 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. With regard to claims 13, 23 and 26, the Examiner states that the variable  $x$  is not defined in  $Mn_xO_2$ . One skilled in the art would know that the variable  $x$  is the number of manganese atoms. Claim 32 has been amended to depend on claim 21. Claim 33 has been amended to create an antecedent basis for "substrate."

Claims 1-28 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisfeld (US 2003/0021720) in view of Kobayashi (US 6,368,668) and/or Hemme (US 6,627,173). Reisfeld teaches a coating of titanium dioxide. The Examiner admits that Reisfeld does not disclose coating one of a metal/titanium dioxide and a metal compound/titanium dioxide and one of titanium dioxide and a metal compound/titanium dioxide. The Examiner states that Kobayashi and/or Hemme disclose these features, and it would be obvious to employ these features in Reisfeld. Applicant respectfully disagrees.

The claimed invention is not obvious. Kobayaski does not disclose a first layer including metal/titanium dioxide or metal compound/titanium dioxide on a substrate and a second layer of titanium dioxide or metal compound/titanium dioxide on the first layer. Kobayaski generally discloses that "a plurality of different photocatalyst coating compositions may be provided followed by successive coating of the plurality of different photocatalyst coating compositions on the surface of the substrate." Kobayaski only generally discloses a photocatalytic coating of titanium dioxide or titanium dioxide including a metal or metal/oxide. However, Kobayaski does not disclose any specific layers in any specific order, and there is no suggestion in Kobayaski to employ any specific layers in any specific order. In the claimed invention, the claimed layers in the claimed order provide benefits that would not be obtained by generally and randomly applying layers on a substrate as disclosed in Kobayaski. Applicant has invented a unique layered coating

that provides benefits over the prior art, which allows the coating to be tailored for the specific application. That is, the choice and the selection of the particular layers in the claimed order is inventive. Just randomly and generally applying layers to a substrate would not produce the effect of the claimed invention. There is no suggestion or teaching in Kobayaski to form the coating with the layers and order as claimed.

There is also no suggestion in any of the references to use two substrates with different coatings as claimed in claims 21 to 32. Kobayaski generally discloses using coatings, but does not disclose, suggest or teach using different substrates having different coatings. Therefore, even if combined with Reisfeld, the claimed invention is not obvious.

The claimed invention is not obvious by adding the features of Hemme to Reisfeld or the combination of Reisfeld and Kobayaski. Hemme discloses titanium dioxide doped with a metal compound. Hemme does not disclose layered catalytic coating. Therefore, adding Hemme to Reisfeld or to the combination of Reisfeld and Kobayaski does not disclose a catalytic coating including a first layer including metal/titanium dioxide or metal compound/titanium dioxide on a substrate and a second layer of titanium dioxide or metal compound/titanium dioxide on the first layer. The combination does not disclose, suggest or teach the claimed invention. The claimed invention is not obvious, and Applicant respectfully requests that the rejection be withdrawn.

Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisfeld as modified by Kobayashi and/or Hemme and further in view of Hirano (US 2003/0050196). The Examiner states that Hirano discloses a photocatalytic filter device including a plurality of photocatalytic filters arranged in a same plane. The Examiner states that the subject matter as a whole would have been obvious to one of ordinary skill in the art, and the claimed invention is obvious. Applicant respectfully disagrees.

The claimed invention is not obvious. Hiarano discloses and illustrates that the substrates 14, 16 and 18 are separate elements in a photocatalytic purifier 10 that are spaced and separated by UV lamps 20. Because of the presence of UV lamps 20 between the substrates 14, 16 and 18, the substrates 14, 16 and 18 cannot be secured together as claimed. That is, it is not possible to attach the substrates 14, 16 and 18 together. The claimed invention is not obvious, and Applicant respectfully requests that the rejection be withdrawn.

Thus, claims 1-44 are in condition for allowance. The Commissioner is authorized to charge Deposit Account No. 03-0835, in the name of Carrier Corporation, \$550.00 for eleven

dependent claims in excess of twenty. If any additional fees are due, however, the Commissioner is authorized to charge Deposit Account No. 50-1482, in the name of Carlson, Gaskey & Olds, P.C., for any additional fees or credit the account for any overpayment. Therefore, favorable reconsideration and allowance of this application is respectfully requested.

Respectfully Submitted,

**CARLSON, GASKEY & OLDS, P.C.**



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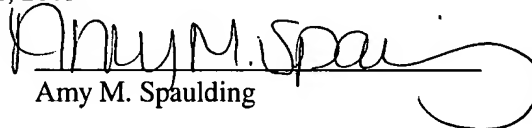
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Dated: November 22, 2005

**CERTIFICATE OF MAIL**

I hereby certify that the enclosed response is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on November 22, 2005.



Amy M. Spaulding